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Extraction and Serological Properties of Mycobacterium Cell Surface and Excreted Proteins

Kamil S. Khaertynov[1,2] · Anna R. Valeeva[1] · Arkadiy V. Ivanov[2] · Malik N. Mukminov[1,3] · Nail G. Urazov[4] · Ilsiyar M. Khaertynova[1] · Natalya M. Aleksandrova[2,5] · Albina V. Moskvicheva[2] · Marina A. Efimova[2] · Rafail M. Akhmadeev[2] · Elvira S. Samigullina[3] · Alexey A. Nabatov[1,6,7] · Eduard A. Shuralev[1,2,3]

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Abstract

Modern medicine still faces the task of distinguishing active and latent tuberculosis cases at the early stage of the disease. Serological approaches have their advantages for their use in diagnostics. However, the progress of these approaches is ongoing but further progress is needed to meet the needs for this disease. Here, we extracted *Mycobacterium tuberculosis* H37Rv proteins from culture medium or from the cell surface and studied their reactivity with anti-*M. tuberculosis* serum in both ELISA and immunoblots. We found that *M. tuberculosis* surface proteins, extracted using dimethyl sulfoxide, with molecular weights in the range of 6.5–200 kDa, showed strong specific reactivity with anti-*M. tuberculosis* positive serum. While excreted proteins in the molecular weight range of 32–45 kDa had the highest reactivity. The latter was confirmed serologically when very weak signal was detected from the filtrate fractions compared to stronger activity from the Vivaspin 50 kDa MWCO retentates. Moreover, *Mycobacterium bovis* and *tuberculosis* proteins from the filter retentates had clear specific serum reactivity, which suggests that this approach can be used for differential diagnosis of two infections.

✉ Eduard A. Shuralev
eduard.shuralev@mail.ru

Kamil S. Khaertynov
khaerkamil@mail.ru

Anna R. Valeeva
anna-valeeva@mail.ru

Arkadiy V. Ivanov
avivanov1950@mail.ru

Malik N. Mukminov
malik-bee@mail.ru

Nail G. Urazov
nail.urazov@bk.ru

Ilsiyar M. Khaertynova
i.khaertynova@gmail.com

Natalya M. Aleksandrova
natalya5566@yandex.ru

Albina V. Moskvicheva
agerasimova2286@mail.ru

Marina A. Efimova
marina-2004r@mail.ru

Rafail M. Akhmadeev
ahm_rafail@mail.ru

Elvira S. Samigullina
elvira00108@mail.ru

Alexey A. Nabatov
rastoska@mail.ru

[1] Central Research Laboratory, Kazan State Medical Academy—Branch Campus of the Federal State Budgetary Educational Institution of Further Professional Education Russian Medical Academy of Continuous Professional Education of the Ministry of Healthcare of the Russian Federation, 36 Butlerova St, Kazan, Tatarstan, Russian Federation 420012

[2] Federal Center for Toxicological, Radiation and Biological Safety, Nauchniy Gorodok-2, Kazan, Tatarstan, Russian Federation 420075

[3] Department of Applied Ecology, Institute of Environmental Sciences, Kazan Federal University, 18 Kremlyovskaya St, Kazan, Tatarstan, Russian Federation 420008

[4] Republican Center for the Prevention and Control of AIDS and Infectious Diseases of the Ministry of Health of the Republic of Tatarstan, 2A Vishnevskogo St, Kazan, Tatarstan, Russian Federation 420097

[5] Combinatorial Chemistry and Neurobiology OpenLab, Institute of Fundamental Medicine and Biology, Kazan Federal University, 18 Kremlyovskaya St, Kazan, Tatarstan, Russian Federation 420008

[6] Science Center, Volga Region State Academy of Physical Culture, Sports and Tourism, 33 Universiade Village, Kazan, Tatarstan, Russian Federation 420138

[7] Department of Biochemistry, Kazan State Medical University, 49 Butlerova St., Kazan, Tatarstan, Russian Federation 420012